



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,815	06/13/2001	John Hardy Mosgaard Christensen	CHRISTENSEN1A	4286

7590 03/18/2005

BROWDY AND NEIMARK, P.L.L.C.  
624 Ninth Street, N.W.  
Washington, DC 20001

EXAMINER	
YAO, SAMCHUAN CUA	
ART UNIT	PAPER NUMBER

1733

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

19

**Office Action Summary**

Application No.

09/879,815

Applicant(s)

MOSGAARD CHRISTENSEN ET AL.

Examiner

Sam Chuan C. Yao

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 7-9 and 23-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-9 and 23-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 7-9 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art (APA) in view of Bair (US 5,135,787), either (LeVan (4,869,771) or Frankosky et al (US 5,225,242)), Kennette et al (US 4,612,226) for substantially the same set forth on 07-28-03 numbered paragraph 5, and optionally further in view of Makoui (US 5,128,082) for reasons of record set forth on 11-01-04 numbered paragraph 2.
3. Claims 1-4, 7-9 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makoui (US 5,128,082) in view of Bair (US 5,135,787), either (LeVan (4,869,771) or Frankosky et al (US 5,225,242)), Kennette et al (US 4,612,226).

NOTE: the limitations in independent claims 1 and 23 do not preclude having a portion of a resin binder penetrating into an inner portion of a fiber web.

With respect to claim 1, Makoui, drawn to a process of making a dryformed absorbent web, substantially discloses the process recited in claim 1 (col. 4 line 31 to col. 6 line 28; col. 7 lines 49-54; col. 9 lines 4-7; figures 1-2). Although not explicitly disclosed, a pair of binder layers are naturally formed on a top surface

and a bottom surface of a fibrous web as evidence from the following passage:

"[b]oth surfaces of the web bear a latex coating 50, which has penetrated or impregnated the web to some degree ..." (col. 6 lines 23-28). A key difference between a process of Makoui and claim 1 is: Makoui does not teach incorporating about 3-25 wt% of thermally-activated binder fibers to an absorbent web. However, it would have been obvious, to those versed in the art motivated by the desire to form a fibrous web with *"good sealing and batt-integrity"* (LeVan col. 3 lines 50-54), to incorporate about 10-25 wt% of thermally-activated binder fibers to an absorbent web of Makoui because: i) it is old in the art of making fibrous absorbent articles to form a non-woven fabric having cellulosic fibers, where a binder fiber and/or a binder resin is/are used to bond a fiber matrix as exemplified in the teachings of Bair (col. 4 line 46 to col. 5 line 25; figure 2; see col. 4 lines 53-60, in particular); and, ii) LeVan, directed to a process of forming a self-sustaining fibrous batt (web) having a sealed outer surface for a minimal fiber leakage, discloses (a) blending staple fibers with 10-25 wt% of binder fibers to form a staple/binder fibrous web, spraying a resin bonding agent onto the surface of the staple/binder fibrous web with a resin material to form a resin coated web and then heat-treating the resin coated web to activate the binder fibers and the resin bonding agent (abstract, col. 2 lines 10- 1 5, lines 27-40); and (b) it is disadvantageous to use binder fibers alone or alternatively a resin bonding agent compared with combining both techniques together (col. 2 line 67 to col. 3 line 2). **Alternatively**, it would have been obvious, to those versed in the

art motivated by the desire to form a batt with an enhance laundering durability and reduced fiber leakage, to incorporate about 4-25 wt% of thermally-activated binder fibers to an absorbent web of Makoui because: i) it is old in the art of making fibrous absorbent articles to form a nonwoven fabric having cellulosic fibers, where a binder fiber and/or a binder resin is/are used to bond a fiber matrix as exemplified in the teachings of Bair (col. 4 line 46 to col. 5 line 25; figure 2; see col. 4 lines 53-60, in particular); and, ii) Frankosky et al suggests combining both conventional techniques (resin bonding and 4-30 wt% of binder fibers) in forming fibrous batt to minimize fiber leakage and improve a laundering durability of the batt (abstract, col. 1 line 47, lines 55-66). It is worthnoting that Franksosky et al also suggest using a latex resin bonding agent in an amount ranging from 10-30% by weight of the batt (col. 2 lines 15-17, lines 34-59).

Makoui also teaches forming a fibrous web, where its weight basis can be as low as 20 g/m<sup>2</sup> (col. 6 lines 40-42) and also teaches applying a latex in an amount which can also be low as 5 wt% of the weight of the web (col. 9 lines 1-6).

Therefore, this teaching clearly suggests that an amount of dry matter of a binder in a fibrous web in a process of Makoui can be as low as around 1 g/m<sup>2</sup> (i.e. 5% of 20 g/m<sup>2</sup>). In any event, it would have been obvious in the art to apply the binder on the web in an amount of .5-20 grams (claim 1) or 0.5-10 grams (claim 3) or 0.5-10 grams (claim 8) or 5-20 grams (claim 9) of dry matter per square meter of the web surface in the modified process of the Makoui because, Franksosky et al implicitly suggest coating about 5 g/m<sup>2</sup> or more of the bonding

resin onto the surface of the fibrous web to effectively prevent fiber leakage (note: Franksosky et al disclose that the final fibrous web has a weight basis in a range of 50-400 g/m<sup>2</sup> and further disclose that the bonding resin constitutes about 10-30% by weight of the final batt; 10% of 50 g/m<sup>2</sup> is equal to 5 g/m<sup>2</sup> (col. 2 lines 53-62; col. 3 lines 32-35); and, because those versed in the art would have determined, by routine experimentation, the suitable and sufficient amount of binder resin to apply on the web in order to effectively prevent fiber leakage on the web and the same time provide the least amount of resin binder material to reduce the cost of making the modified absorbent web of Makoui.

Makoui modified by either LeVan or Frankosky et al, however, does not teach the amount of dry matter in a resin binder; wherein the amount is 0.5-15% (claim 1) or 0.5-10% (claim 2) by weight to the web. However, it would have been obvious in the art to provide a latex resin binder having the amount of dry matter recited in claim 1 or 2 in forming the modified dryformed web of Makoui, because one in the art would have determined a suitable latex binder composition needed to be applied to the modified process of the APA (i.e. such is taken to be result effective variable routinely optimize by those versed in the art for the desired end-use of the absorbent paper); and because it is old in the art of making cellulose absorbent webs of the type taught by the Makoui to apply a dilute latex binder where the amount of solid binder is in the range of .about .5-5% by weight as exemplified in the teachings of Kennette et al (abstract; col. 1 lines 10-28; col. 3 lines 29-45). Only the expected result of effectively sealing the surface of a resultant dryformed absorbent web would have been achieved.

Note: it is a common practice in the art to determine, by routine experimentation, the amount of binder to apply to a fiber web in order to satisfactorily balance a trade-off between good resistance to defiberization or delamination, and good hand-feel or comfort on a resultant fiber web. The art would have understood and appreciated that the amount of resin binder needed to effectively bond and seal the modified dryformed absorbent paper of the APA depends on a number of factors such as the amount of binder fibers, amount of pulp fibers, thickness of the paper web, etc.

With respect to claims 2-4, 7-9 and 23-24, these claims are rejected for reasons for substantially the same reason as numbered paragraph 2.

4. Claim 25 is are rejected under 35 U.S.C. 103(a) as being unpatentable over the references set forth in numbered paragraph 2 or 3 as applied to claim 23, and further in view of Walter et al (US 4,562,097) for reasons of record set forth on 11-01-04 numbered paragraph 4.

### ***Response to Arguments***

5. Applicant's arguments filed on 02-10-05 have been fully considered but they are not persuasive.

On page 6 last paragraph to page 7 full paragraph 2, Counsel argues that “[t]here is nothing in the admitted prior art that teaches ... a technique in which a combination of the two bonding methods is used in manufacturing a dryformed web.”. Examiner agrees. However, the main issue here is whether or not (in light of the prior art teachings), it would have been obvious in the art to combine these two bonding methods to manufacture a dryformed web. It is respectfully

submitted that, such would have been obvious in the art for reasons set forth in numbered paragraph 2.

On page 7 last paragraph, Counsel argues that “... *it is difficult ... to apply binder fibers to the material and also to spray the aqueous binder onto opposite sides of the material.*”. It should be noted first of all that, Counsel’s arguments are not commensurate with the scope of the independent claims. The recited independent claims do not remotely require using an aqueous binder. Equally important, Counsel’s argument does not change the fact that it is well known/conventional in the art to apply binder fibers to a fibrous web and also to spray a binder onto opposite sides of the fibrous web in order to reduce fiber leakage in the web as exemplified in the teachings of LeVan and Frankosky et al. Moreover, it is also known in the art to form a **fibrous absorbent web**, where a combination of prior art bonding methods are used. As for Counsel’s argument on page 8 full paragraph 1 that there is no reason in the art to look to Bair to manufacture a dry-formed cellulose web, since a web of Bair is a polyester carded web. Examiner strongly disagrees. It is worth-noting that, Bair also teaches incorporating hydrophilic fibers such as wood fibers to a fibrous web (col. 4 lines 46-68). The teachings of Bair in combination of the above prior art references would have suggested to one in the art that one can effectively apply a combination of the prior art bonding methods to a fibrous web to reduce fiber leakage and enhance fiber web integrity without substantially affecting the absorbent characteristic of a resultant fiber web.



On page 8 full paragraph 3 to page 9 line 8, Counsel argues that the outer surface of a LeVan Batt is sealed so a liquid will not enter the batt. It is respectfully submitted that, Counsel is mischaracterizing the teachings of the LeVan patent. While it is true that, LeVan teaches forming a sealed outer surface to a batt, there is nothing in the disclosure in LeVan that this prevent from a liquid from entering the batt. One should read the phrase "sealed outer surface" in the context of the teachings of LeVan taken as a whole. The teachings would have reasonably suggested to one in the art that the sealed batt is used to assist in retaining fibers (i.e. prevent fiber leakage) in the batt and NOT in prevent fluid from entering. For example, a batt with a plurality of pin size holes would seal dust particles in the batt, but would not prevent fluid from entering into the batt. In fact, the present invention also discloses forming an absorbent fiber web where the surfaces of the web *"are sealed"* (abstract). Just like LeVan, the surfaces of a web of the present invention are sealed to prevent fiber leakage, but not prevent fluid from entering the web. As for Counsel's argument regarding the Franksosky et al patent, it would appear that, Counsel would like to have it both ways. On the one hand, Counsel argues that, since the surfaces of a fiber web of Franksosky et al are sealed, the web *"cannot absorb liquids"*. On the other hand, Counsel argues that, since the surface of a fiber web is sealed *"to prevent long polyester fibers from working themselves out"*, Counsel appears to suggest that the web is unable to trap dust particles. It is respectfully submitted that, a fiber web of Franksosky et al is capable of at least trapping some dust

particles in light of the similarity of the production processes between Franskosky et al and the present invention.

As for Counsel's argument on page 9 full paragraph 1 regarding the Kennette et al patent, Kennette et al is merely cited to show that it is old in the art apply a diluted latex to a fibrous web, where the amount of solid binder in the latex ranges from about 0.5-5 wt% (abstract; col. 1 lines 10-28; col. 3 lines 29-45).

As for Counsel's argument on page 9 last full paragraph regarding the Bryson patent, this patent is merely cited to show it is well known in the art to provide a super-absorbent material around a central portion of a fibrous absorbent article. Equally important, this reference has been removed, since a super-absorbent central layer is merely optional in the claimed invention.

On pages 10-12, Counsel argues "... *Makoui **teaches against the present invention, in which the binder layer is only applied to the applied to the top and bottom surfaces of the web***" (bold-face in original; emphasis added). Examiner strongly disagrees with Counsel's assertion. First of all, Counsel's argument is NOT commensurate with the scope of the recited claims. It is respectfully submitted that, the claims as presently recited do not require applying a binder layer only to the top and bottom surfaces of the web. In other words, the claimed invention does not preclude some penetration of a binding agent into a fibrous web as long as a pair of binding layers is formed on the opposing surfaces of the web.

On page 12 last paragraph to page 13 line 9, Counsel argues that, *"the present invention uses bonding agent in about 0.5 to 20 grams of dry matter per square meter. ... Makoui proposed ... the use of latex in a range of from 5-20 weight %, which is far more binding material than in the present invention."* Examiner disagrees with Counsel's assertion. As noted above, a fibrous web of Makoui has weight basis can be as low as 20 g/m<sup>2</sup> (col. 6 lines 40-42) and a latex which is applied to the web can also be low as 5 wt% of the weight of the web (col. 9 lines 1-6). Therefore, this teaching clearly suggests that an amount of dry matter of a binder in a fibrous web in a process of Makoui can be as low as around 1 g/m<sup>2</sup>. This value is in fact significantly lower than a maximum value of 20 g/m<sup>2</sup> recited in the claims.

As for Counsel's argument on page 13 full paragraph regarding the addition of binder fibers to an absorbent fibrous web of Makoui, Counsel's attention is directed to column 2 line 67 to column 3 line 2 of the LeVan patent, where it is clearly disclosed that *"... use of binder fiber alone, or alternatively spraying a resin bonding agent alone, has disadvantages, in contrast with the result of the process of the present invention."* (i.e. a combination of the two bonding methods). Moreover, Counsel's attention is directed to the example provided by LeVan such as examples I-1 and I-2. Accordingly, a web which does not use a blend (i.e. binder fibers) *"shows layering, as would be expected from the absence of binder fiber in the core"*, while a web which uses a blend in combination with resin binder *"shows good sealing and batt-integrity"*. Counsel's attention is also

Art Unit: 1733

directed to an abstract of the Franskosky et al patent, where a resultant web, formed by a combination of two bonding methods, has *"low levels of fiber leakage ... enhanced durability when laundered ... and enhanced structural integrity ..."* (abstract).

### **Conclusion**

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (571) 272-1224. The examiner can normally be reached on Monday-Friday with second Friday off.

Art Unit: 1733

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

Scy  
03-14-05